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COASTAL LANDS OF THE SEA OF MARMARA

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The Sea of Marmara might well be referred to as an enlarged Turkish channel. Its area (4,500 sq. m.)[1] lies entirely within Turkish territory and forms a major part of the natural boundary between Turkey in Asia and Turkey in Europe. It is but a small part of the mighty waterway system which for ages has carried Mediterranean influence hundreds of miles inland from the mother sea. The Aegean Sea, the Dardanelles, the Bosphorus, the Black Sea and the Sea of Azov are all a part of the great marine arm over which so much culture and trade has passed and upon which so much history has been made. It is a typical drowned area, 170 miles long and 50 miles wide with steep sloping shores. Its long-reaching bays and gulfs carry the sea influence inland a distance of 30 miles to a region which might otherwise be classed as a part of the interior of western Anatolia. Numerous islands, upper areas of a now drowned mountain system, dot the surface.

It is advantageous to divide the Marmara area into three regions each of which is based upon major physiographic features. The south coast with its high adjoining lands forms the first region, the north coast with its low-lying plains forms the second and the islands form the third.

THE SOUTH COAST REGION

The south coast extends some 340 miles from the mouth of the Bosphorus to the Straits of Gallipoli which form the entrance to the Dardanelles. Its normal length is greatly extended by the 65 miles of coastline of the Gulf of Izmit and the peninsula lying just west of the port of Bandırma. The characteristic topographic

[1] Lake Erie, second smallest of the Great Lakes, has an area of 9,960 square miles, or more than twice that of the Sea of Marmara.

features of the southern coastal lands are the regularity of the coast line and the steep slope of the immediate adjoining lands. Both of these exert an influence upon man, an influence not entirely in his favor, as we shall see.

Across the whole northern part of Asia Minor stand the northern Anatolian mountains (Pontic Alps) which form the major topographic feature of the Black Sea littoral. These young mountains whose source is in the Armenia massif extend westward in an unbroken line until they reach the Marmara area where they fork into three ranges separated by long finger valleys. The major range is

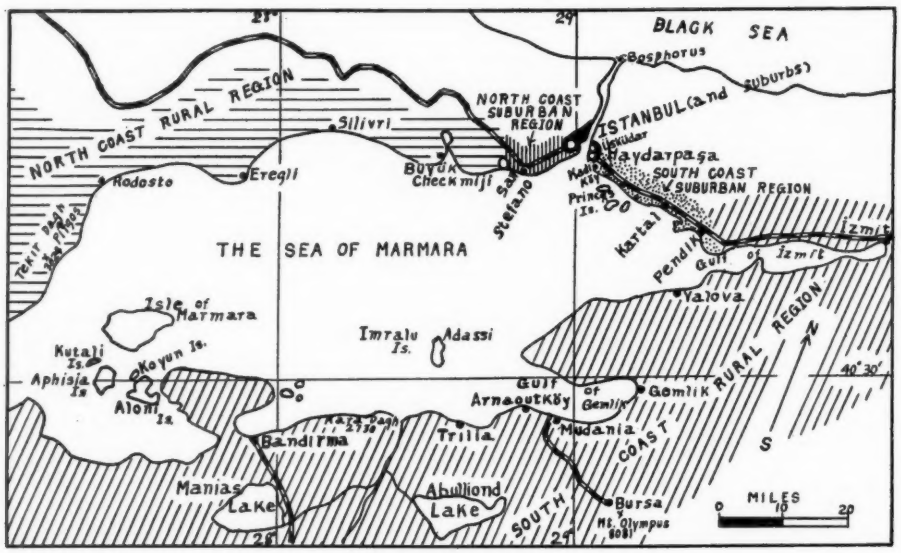

FIG. 1. Sketch map of Marmara region.

the most southern of the three and forms a natural barrier which limits the extent of the Marmara area on that side. It lies between 25 and 40 miles from the coast and reaches its greatest height, 8,081 feet, in Ulu Dagh (Mount Olympus) which rises immediately south of the city of Bursa. From this point the range continues westward but does not attain an elevation greater than 4,728 feet. Between this range and the middle range lies the Bursa Valley, 70 miles in length and varying in width from 5 miles in the east to nearly 25 miles in the west. The middle range follows the shore line and does not reach an elevation greater than that of Kara Dagh (Black Mountain) which stands 2,730 feet above the sea. This middle range forms the southern boundary of the great drowned

area which is the Sea of Marmara, as well as the northern boundary of the Bursa Valley. The third and most northern of the three ranges curves northward and forms the hilly topography of the peninsula which lies between the Black Sea and the Sea of Marmara.

The climate of the south coast land is dominated by the local wind system. Three winds blow interchangeably; a northern wind from the Black Sea area, a northeastern wind from the highlands of western Anatolia, and a south wind. Of these three, the northeastern wind, or "meltem" as it is called by the Turks, is by far the strongest. It begins to blow in the early days of June and continues almost without interruption until the last days of September. Since the wind travels overland from the east, it brings to the Marmara area a summer drought, typical of Mediterranean summers. The south wind never blows during the summer months, but, on rare occasions the north wind interrupts the "meltem" long enough to bring to the area a stimulating change of atmospheric conditions. From October to June the north and south winds blow interchangeably. This is the period of heavy rainfall. Both winds being moisture laden, the colder temperatures brought down by the Black Sea influence result in weeks of sunshine-less wet days and often in snow. These winter winds when forced to rise over the southernmost range, provide sufficient moisture for the growth of trees on both the northern and southern slopes.

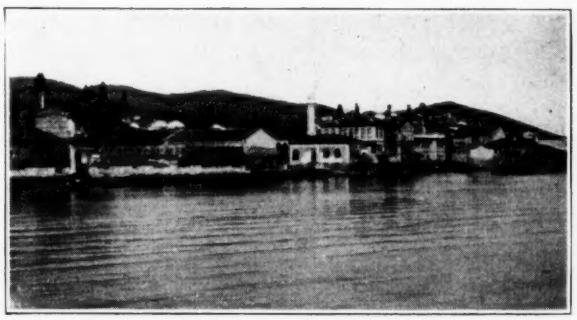

FIG. 2. Mudania, the port of Bursa.

The human adjustment in the south coast region is distinctly of two types, suburban and rural. The suburban section extends from the Bosphorus to the village of Pendik. This land immediately adjoining the coast is devoted to suburban developments, partly because of its close association with the metropolitan area on the west side of the Bosphorus made possible by the easy means of communication with Istanbul over the Turkish railroad system and the ferry service which calls at each village in the section, and partly because it offers fine home sites which command a view of the sea.

Haydarpaşa is the terminus of the Anatolian Railroad system and as such is a busy transfer point for both passengers and freight. The trans-shipping of goods provides employment for a large number of people, most of whom live in Üsküdar (Scutari), and offers a sufficient reason for including the city in the urban region of Istanbul (Constantinople), especially since the residents of the terminus city are greatly dependent upon the city proper not only for their physical comforts but for food and more than half of their business dealings as well.[2]

Figure 1 indicates that the Anatolian Railroad runs parallel to the coast line from Haydarpaşa to the city of Izmit, and that the distance is occupied by a series of small cities or villages. These villages between Haydarpaşa and Pendik are the truly suburban quarters. Here it is that many of the business men of the city live. A splendid ferry boat service makes immediate connections with trains and affords passengers a comfortable and necessary auxiliary to the rail transport. It is this highly satisfactory system of communication that is largely responsible for the suburban development of the section.

FIG. 3. Roads which might be termed, "passable," connect the larger cities of the southern rural region.

The suburban section is characterized by a predominance of large well built and well kept houses with spacious grounds. These are located between the villages. The villages themselves are somewhat more prosperous than the ordinary run of Turkish villages, and tho they consist chiefly of shops and the smaller houses of tradesmen, they are well kept and are a credit to the people.

The rural section of the southern coast is by far the larger of the two sections and begins at Pendik where the fine local train and

[2] See "Life in the Communities along the Bosphorus," Stotz, JOURNAL OF GEOGRAPHY, May, 1932.

ferry services have their termini. It includes the northern coastland of the Gulf of Izmit as well as the large expanse of land which is left isolated when the railroad strikes inland from the city of Izmit.[3]

The rural section is occupied by a number of small villages widely separated from each other and all dependent upon Bursa, the one large city of the region. The rugged topography of the section and the lack of capital has discouraged road building to a point where transportation and communication is very difficult. In the whole section south and west of Izmit with an area of more than 700 square miles, only 24.6 miles of railroad (narrow gauge) are to be found, connecting Bursa with its port, Mudania. The road mileage is correspondingly small. Bursa is connected with Mudania, Bandırma and Yalova by good roads, while a way that might well be described as "passable" leads south and east to Eskişehir. This southeastern route is the only means of contact between the area and the interior regions of the country. With such conditions existing between cities of large population it is little wonder that villages are not connected either with each other or with the city of Bursa, except by wagon tracks or vague routes across country.

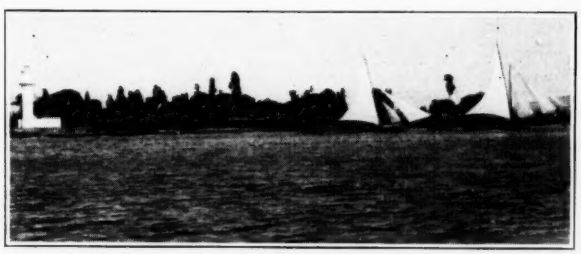

FIG. 4. Typical sails coasting along the southern suburban region water front.

Whereas life in the villages of the urban section is on a decidedly modern basis, with houses of wood, brick or stone, and cobbled streets, life in the villages of the rural section is simple and breeds an atmosphere of oriental agricultural contentment. Houses are made of sun-dried bricks reinforced with wood and are of small dimensions. Usually the houses have but one or two rooms which serve as rooms of all work, as sleeping quarters for both man and beast. Such modern conveniences as the electric light have not yet reached many of these villages nor has the need for them been felt keenly.

The barren hills afford but pastureland for sheep and goats and these form the basis for human life and occupation in most of the villages. The valley lowlands are extremely fertile, however, and

[3] The isolation of Bursa is mentioned by L. Dudley Stamp in his book "Asia," E. P. Dutton and Co., 1929, p. 84.

while they are not intensely cultivated they supply a large proportion of the truck, garden products, and industrial plants which are used in both the region and in Istanbul alike. So fertile is the land and so adaptable to truck farming that it has been found profitable to establish a canning industry in Bursa. Tho this industry is but a few years old, it has already made notable progress and has been a factor in reducing the unfavorable balance of trade which has existed in Turkey for many years. Tomatoes, peas, beans, mixed vegetables and dolma[4] are the leading food stuffs conserved by this industry. Some fruits are also canned but the few peaches, apples and pears that enter the operation take a decidedly secondary place.

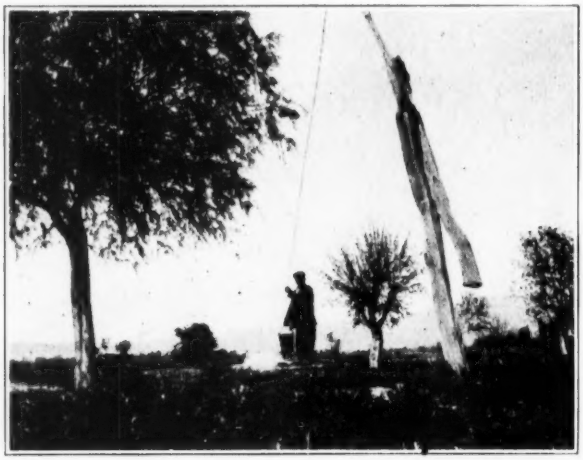

Fig. 5. In the Bursa valley area, between the two forks of the highlands, fruit trees are grown. Mulberry trees, such as the one on the right of the well, are used for fence crops.

Of these fertile areas, the Bursa Valley stands foremost. It is the source of more than half of all the truck produced in the region and in addition supplies the raw materials for the Turkish silk industry which is also located in Bursa. Mulberry trees are used largely as fence crops and provide a comfortable income to valley farmers.

Since the whole region has a dry Mediterranean summer, much of the vegetation, save on the slopes, is Machi, drought resisting. The olive tree provides an important source of revenue and food, and is cultivated in large numbers on the seaward slopes of the "middle range." There are no olive trees in the Bursa Valley, and but few on the slopes of the southernmost range. The oil-making industry is confined to the coastal villages: Gemlik, Mudania, Arnaoutköy and Trilia leading. Altho this industry is of ancient origin it is still carried on in a primitive fashion. Hand presses are

[4] Dolma is a much loved oriental dish. It consists of rice, often with pine nuts and currents wrapped in cabbage or grape leaves and boiled in oil.

used which fail to secure the highest possible yield of oil. The careless method of harvesting the fruit also tends to reduce the quality of the product to such an extent that it can no longer compete with the Greek and Italian products on the world's markets. Hence, most of the Turkish olives and olive oil are used locally as food.

Two lakes, Manias Lake and Abulliond Lake, provide some fresh water fish for local consumption, but the salt water fish of the Sea of Marmara are far more important as a factor in the local food supply and trade. The regular drowned coast line of the south shore provides but one good harbor, Bandırma. All other harbor facilities are man-made and are most unsatisfactory. On days of high wind it is impossible for ships to leave Istanbul for Marmara ports since landings under high wind conditions are impossible. Even in calm weather it is not without difficulty that ships dock at these tiny south shore ports.

The North Coast Region

The north coast is more unlike the south coast than the mere difference in name would indicate. Whereas the previously discussed coast is steep and typical of a drowned coastline, the north coast is low-lying with large plains extending from the water's edge far inland. Only at the western end of the coast do the mountains flank the sea, and there it is that the Tekir Dagh reach their highest elevation of 3,024 feet at Pirgos and then decrease in elevation toward the south, blending into the rough rocky topography which is the Gallipoli Peninsula.

The shore line of the north side is much shorter than that of the south, since there are neither great bays and gulfs, nor extending peninsular lands. The distance from the mouth of the Bosphorus to the mouth of the Straits of Gallipoli is but about 130 miles along the shore. The coast is regular and this combined with the fact that the water is very shallow makes navigation most difficult, and renders ports useless especially during periods of south wind.

The northern coastlands receive slightly less rainfall than those on the south, but it is distributed so that here, as in the south, the winters are rainy while the summers are hot and very dry. Far inland, elevations rise high enough to cause precipitation resulting in a more humid region.

To limit the boundaries of the north coast region is difficult, since there are no topographic features as in the south which provide natural barriers and isolate the region from the interior lands,

causing the people to look seaward. The great plains of the northern coast extend far inland to areas where the sea has no influence whatsoever. It would seem advisable to set the northern limit of the region at a place where the people no longer look to the sea for their livelihood, food, and transportation. This human adjustment boundary line in some places flanks the sea and in other places extends inland, but in no case does it lie more than fifteen miles from the coast. Its position is determined by a study of the location of the railroad line leading from northern Europe to Istanbul and the location of connecting roads. The railroad with its zone extends thruout the region and is largely responsible for the independence of the people with regard to the sea.

FIG. 6. The railroad and the factories of the North Suburban Region give to the place an industrial atmosphere. Istanbul proper in the background.

The north coast region like the south coast, may be divided into two separate sections: the first, suburban, and the second, rural. The suburban section extends from the city walls of Istanbul along the railroad, a distance of about fifteen miles as far as the first of the two fresh water lakes, which is cut off from the sea by the development of a great bar across its outlet. In this section there are fewer residences than in the south suburban section, for the lowland here does not afford the fine view that is everywhere available on the south coast. There are instead a number of summer resorts which make use of the sandy beaches for bathing and swimming purposes, attracting large crowds from the city during the hot summer months. A few cement factories are to be found which utilize the limestone deposits, so plentiful along this coast, and buildings which house the textile, canning, leather, and steel industries of the city give this quarter a decidedly industrial atmosphere. San Stefano has a residential community and was once one of the finest residential sections, but has, since the exchange of populations and the removal of many of the wealthy merchant class, fallen into second place.

The rural section which continues from the lakes to the mouth of the Straits of Gallipoli is not isolated as is its counterpart, but is well connected with Istanbul on the one side and Edirne (Adrianople) on the other. As the table indicates, this section is smaller than the rural section on the south coast.[5] Its population is smaller but it is far more intensively cultivated. It claims many more villages of the type described before and these are connected with each other in most cases.

While some cereals are grown, sugar beets are by far the leading crop and sesame seed, bird seed, and truck rank along in similar capacities, the latter being used entirely as local food.

Metalled roads connect Büyük Checkmiji and Silivri with Istanbul, thereby making it possible for motor transport to partly replace the ship traffic, thus reducing the importance of the sea to the people living between the latter city and Silivri. Eregli and Rodosto, however, are not connected with the urban region except thru the ship service which is maintained by the government. They are the two leading ports of the area from which goods are shipped to Istanbul to be reshipped to various destinations. They claim almost all of the non-agricultural population of the region. The smaller seaside villages are engaged in fishing rather than in shipping.

The Islands

The islands of the Sea of Marmara form themselves into four groups. The eastern group, otherwise known as the Princes' Islands, contain four large islands and seven small ones. This group lies immediately off the coast of the southern suburban section. The second or central group consisting of but one island, Imralu Adassi[6] (Kalolimno), lies off the coast of the southern rural section in a central position. The third or western group contains three large islands and five small ones, and lies off the western end of

[5] The figures here are taken from the Turkish Government Census of 1927—first and only census of this country.

Area	Population	Agricultural Population	Area Cultivated Square Miles	Percentage of Area Cultivated
South Rural Section	399,942	309,545	669.6	8.22
North Rural Section	132,122	100,760	585.6	16.40

[6] Also spelled "Imirali Adassi."

the southern rural section just west of the Bandırma peninsula. The fourth group of three small islands, lies just east of the same peninsula.

The Princes' Islands are by far the most important of all the groups. They derive their name from the fact that they were used in olden times as a summer resort for the princes of the royal house when Istanbul was the capital. Today they serve the same purpose but the royal summer palaces are gone and the pomp and ceremony which once attended life on the islands has given way to the informal chatter and jest of the vacationers seeking rest and comfort away from the heat of the city. Büyük Ada or Big Island (Prinkipo) leads in the vacation business. Its many hotels and swimming beaches have a great attraction for all of the diverse groups of people who make up the cosmopolitan population of Istanbul. It has a colony of beautiful homes, usually used only during the summer, and ample space for persons who come but for a day. The other three large islands are not as highly developed and hence attract people who enjoy the unimproved bits of nature and scenery which they afford. The seven small islands are uninhabited and are of no importance from a human standpoint. A ferry boat service, part of that operating on the Bosphorus, brings the islands into easy reach of all.

The islands of the western end of the sea, Imralu Adassi and the Marmara group, are of little importance today. Most of them are uninhabited save for an occasional fishing hut which serves as home for a mere handful of fisher folk. These islands were once important centers of human activity, for fishing and agriculture flourished upon them before the exchange of population between Turkey and Greece. Most of the residents in former times were Greeks and they cultivated large amounts of truck garden products which had an ample market in Istanbul, and thus prevented the rural section of the southern coast region from developing its truck garden sites. The island of Imralu Adassi promises to be of more importance in the future. In the spring of 1932 a visit was paid to the island by a group of high governmental officials who felt that it was a great economic loss—this island without people. Steps were taken to repopulate the island with the result that 300 immigrants went there to live. They reopened the fishing industry and recultivated the long idle truck garden plots. To recapture the lost market has been difficult and has resulted in a number of families moving back to the

mainland where life is more comfortable and profitable. However, there is great probability that the island will regain its former status as a truck and fish provider.

The isle of Marmara itself was the source of much of the fine white marble now seen in the various buildings in the Marmara area as well as in the region of Istanbul. The word Marmara means marble and it is believed that the sea got its name from the fact that marble was once the most valuable cargo passing thru its waters.

In Prospect

It is difficult to predict with any degree of certainty what the future will bring forth from the regions of the Marmara area. However, one cannot help but realize that these regions are as well situated as any in the whole country. Indeed, they far outrank many a Turkish region. Their fertile soil and equitable climate insures at least a fine agricultural future. Both the north and south rural sections can be made to produce many times their present yield if cultivated more intensively with wise direction, a situation which the Agricultural School, now located in the Bursa Valley, is trying to bring about. Also since most of Turkey depends on the coastal regions for many agricultural crops, and since high customs walls prevent imports from other lands entering into any sort of competition with local products, the future appears to be bright. There is a concerted movement in Turkey for the use of home products, with the result that the sugar beet growers of the northern rural region find themselves protected from outside sugar competition and find an easy and profitable market for their crops. Likewise, the silk industry of Bursa is protected and increases steadily, as do the canning, textile and leather industries of the north suburban section.

Aside from the agricultural richness of the area, it is of the utmost importance to Turkey because of its location as part of the Zone of the Straits, controlling the passage of all sea traffic over the marine arm of which it is a part.

ELEMENTARY SCHOOL GEOGRAPHY AND WORLD PROBLEMS

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How can geography in the elementary schools contribute to the solution of world problems? This may seem a preposterous question to ask when one considers the tangled condition of world affairs and the extent to which they have baffled and perplexed outstanding leaders in all countries. The thoughtful person, however, does not so consider it. He has seen "great oaks from little acorns grow." He realizes that present deplorable world conditions exist because of lack of knowledge and understanding, of selfishness, and of antiquated social ideals with their consequent unsocial action. He sees ignorance and wrong attitudes as the roots of the trouble and education as their exterminator.

Even the casual observer must sense that Science, the wonder worker, has built and is building a new world. To live satisfactorily in it we must build and keep building new ideas for its redirection. These ideas must grow out of a breadth of understanding. The new social world that is in the making must be directed by co-operative ideals. Belief in the self-sufficiency of nations must be abandoned. The best hope for abundant living for all nations lies in closer world co-operation. This calls for the substitution of thinking for prejudice. It calls for broad deep knowledge of world conditions, sympathetic understanding of the peoples of all lands, and attitudes of co-operation national and international strong enough to eventuate into action that aims to secure the greatest good for all. The beginnings of this knowledge, understanding, sympathy, and co-operation must be cultivated in our schools and the first growths started in our elementary grades. The experiences of young people in the social science field can and should be strong influences for the establishment of permanent world peace. Our problems now are to discover better ways of living together for the common good and to develop international co-operation fast enough to outrun the old forces that lead to international war. This is a life and death race. Geography properly studied can help to win it. It can make substantial contributions to a knowledge and understanding of world conditions, to the growth of tolerant, friendly attitudes, and to a co-operative spirit.

Thinkers or Rememberers?

If we consider the first of these contributions we recognize that concern over the child's acquirement of geographical knowledge is not new. It brought geography into the school curriculum. Concern that children really understand and think about these geographical conditions, to the extent that they see their implications, has not been general in schools tho the best teachers have definitely worked to get their pupils to see relationships and their significance. Too many teachers, however, have been content to make mere rememberers rather than thinkers of children. To neglect thinking and understanding is fatal in any field and surely it is evident that geographical information without understanding can never contribute to the satisfactory solution of world problems. If it is to do this the organization of the work must be such as to make thinking the central point in learning. How can this be done?

Raising Problems and Purposes

Since problems and purposes are essential to thinking it should be the teacher's definite aim to organize the work in such a way as to have problems raised by the pupils and purposes for the direction of study aroused in them. These will arise if children are exposed to challenging experiences and ideas. The wise teacher will therefore plan an environment that is stimulating to her pupils. With the needs of her class and the demands of her course of study in mind, she will assemble materials designed to start children thinking. Several days in advance of the new study interesting books relative to the subject, and stereographs concerning it will be placed on the reading table. Pictures, clippings, and cartoons will be posted on bulletin boards. If pertinent objects of virtu are available they may be displayed. Enough of these materials will be placed about the room to quicken curiosities, raise questions, and start interests. A stimulating environment such as may be set up in such simple ways as these helps to orient children, and it helps to create readiness and eagerness for the new study. This establishing of a quickening environment is the preliminary step of the introduction. Sometimes by this means alone enough problems and purposes are generated to launch the children on the new study. Frequently, however, more of an introduction is needed, for the chance problems and inconsequential purposes that may arise may not be of suitable nature to yield educational fruit. Obviously in setting the environment the teacher will sow seeds for some specific

problems and expect these to germinate. If they or others equally good do not germinate she herself will introduce desirable problems. A teacher-organized problem will be as promptly appropriated by pupils as their own if it is equally exciting to their interests.

There are many stimulating methods of approach to a new subject. Some of these are exploratory in nature. The teacher aims to find the little islands in the children's past experiences that may serve as a means of approach to the new continent of thought that lies ahead. She aims to utilize their past thinking and to have the children themselves supply a number of the points of departure for the new study. In the introduction teacher and pupils locate these together. The means of introduction that the teacher uses are of little consequence as long as they eventuate in raising worthwhile problems that children are interested in solving, and in establishing worth-while purposes that they want to carry out. Such problems and purposes give rise to sustained thinking.

Activity Essential to Thinking and Learning

The solution of problems and the accomplishment of gripping purposes will make many demands upon pupils other than that of the conventional textbook study. Progressive public schools are utilizing various kinds of activities to further learning because their leaders recognize that activity is an essential part of thinking and learning. Therefore in the solution of their geographic problems pupils read, make maps and grafs, draw, paint, model, construct, study pictures, take trips, have interviews with people, engage in literary activities, etc. They work independently and in small groups. At appropriate times they assemble for discussion. The memorization of facts is greatly minimized for it is patent that the facts of yesterday are frequently untrue today. The main purpose of the geography discussion period is for the location and solution of problems. Facts and principles will be memorized to the extent that they facilitate thinking. Our concern is to make thinking children. Our hope is that as a result of many vital experiences in the field of geography children will develop interests sufficiently vigorous to make them seek to keep themselves informed on matters of general significance for we are striving to make intelligent citizens.

Importance of Attitudes

Concerning the second of the possible contributions of geography, the development of desirable attitudes, it is well to remember

that the new psychology has indicated the control that attitudes exert over our thinking, learning, and conduct. It ascribes them a central place in the process of learning and shows that the attitudes that children acquire probably do more to influence their future living than anything else that they learn. Clearly then the school must have great solicitude for the attitudes that are established. What attitudes are essential to an understanding of other people, to peaceful living and working together, to world co-operation? Respect, toleration, sympathy, receptiveness to change, openmindedness, and co-operation are some of the rather inclusive ones. These attitudes are not separate and distinct. They merge into each other. Geographical thinking offers excellent possibilities for the development of all of these.

Make Understanding the Basis for Attitudes

The development of respect for other people can be begun early. In primary grades it is customary to give children an introduction to various foreign countries by centering study upon child life in these lands. Children's interests in other children and in novel situations are very keen and when this work is well done they get a good background for the understanding of numerous phases of life and for their later more intensive study of conditions in other countries. But more important than their accumulation of geographical ideas, is the character of the attitudes that they are acquiring. Wise selection and careful organization of materials will lead children to wonder why the methods of living of other people are so different from ours. Many problems will arise in their minds. As they are solved, children can be guided to see that these foreign people are adapting themselves in natural and normal ways to the conditions of their environments and in many cases modifying these in ways that require great originality, persistence, and courage. An understanding of the reasons for what at first seem very queer customs will help to keep children from developing that national egotism that leads to the feeling that ways different from ours are inferior to ours. The understanding of climatic and other handicaps will help children to respect the ingenuity, skill, and ability of people whom they would otherwise think queer, or funny, and not nearly as clever as "we the people of the United States." We can further help children to develop the respect that paves the way for toleration and sympathy by giving them a suggestion of the whole picture of the life of the people they are studying, not merely the

picture of the physical, commercial, and political phases of it such as is ordinarily given in geography classes but a view extensive enough for them to get the beginnings of an appreciation of the art, music, literature, and social ideals of the people under discussion. This is being done successfully at the present time in a number of schools, particularly in primary schools where rich social science courses are the centers of the curricula.

WIDE READING

The geography work of the intermediate grades needs enrichment in much the same way. In too many cases a savorless diet of fragmentary, dry facts is spread before children and mental indigestion, which is quite as distressing as its physical counterpart, results. This explains why it is that many youngsters who love adventure, travel, and exploration have little relish for the study of geography. Geographical content well selected and intelligently approached can give them much the same type of interesting worthwhile thinking that they get from accounts of adventurous exploration and travel. The study of geography will enthrall many children when it leads them to make contacts with thrilling accounts of explorations and travel as well as with other types of interesting reading related to the field under discussion. Geographic principles will be deduced from reading of this character. In fact, the chances are that they may learn more geography from this type of wide, purposeful, and varied reading than from the formal type of study where all are kept within the confines of the lanes of thought supplied by a single text which usually is too difficult for a good share of the class. If geography continues to be taught in the intermediate grades as a separate subject rather than as an integrated part of a social science course efforts should be extended to give the children in their courses in history, literature, art, music, etc., materials adequate to provide an enriched understanding of the peoples and conditions under discussion and to awaken such appreciation as is warranted. With appreciation come respect, sympathy, and toleration.

RECEPTIVENESS TO CHANGE

By means of the world geography that is studied in our schools young people should discover the varied cultures that the people of different countries have developed and should see in addition that every civilization has drawn heavily upon earlier civilizations, that progressive nations borrow ideas freely from their neighbors,

that areas of world co-operation have been constantly enlarging, and that further extension of these areas is desirable. It is advantageous for young people to become aware of these facts and to realize that the varied peoples of the world have unique and valuable contributions to make to the composite cultural pattern which is constantly emerging—a pattern that will never be fixed but always be kaleidoscopic. With this recognition of the fluidity of civilization should come an awareness of the fact that changes will occur more rapidly in our highly technological world than they have even in the immediate past. This should bring an attitude of receptiveness to change. Would not the general prevalence at the present time of such an attitude help to make the changing character of today's social situation a challenge rather than a portent of doom? Is not the mental inability of many of our leaders to recognize the inevitableness of change and to plan ways of directing it something of an indictment against the school systems that helped to educate them?

Co-operative School Living

Public school leaders with broad educational aims in harmony with modern thought are doing much to build desirable attitudes in more than an academic way. Their school situations are life situations. They see the school as a small world, a child's world but a genuine one. In this world children have constant practice in co-operative living. Under intelligent and careful teacher guidance desirable attitudes are fostered. In the real living that goes on in these schools there is a give and take, a willingness to let others develop their own personalities, a recognition of many kinds of abilities, a respect for the different types of contributions that are made by the various members of the group. The child who would lose caste in the conventional school in which a premium is placed on ability to amass book knowledge has a chance to gain respect in these schools because of his contribution along administrative, artistic, social, or manual lines. Respect for achievement is gained in such schools not merely in a theoretical way but by actual experience in living. The scientific attitude of mind is acquired by constant practice of it. Responsibility for thinking, purposing, planning, is given to children. Thru careful guidance the qualities of leadership and co-operation are nurtured. When children know the meaning of co-operation because they have experienced it or its absence in real life situations they are in a position to sense its

significance in the larger world of affairs into which they are gradually but steadily being drawn.

Not long ago a visitor in a third grade in a public school observed the children studying China. They were engrossed by the unique ways of living there and had been led to see how these are the response of the people to environmental conditions. They had acquired respect for the mentality of the Chinese and the highly developed civilization they had achieved while Western Europe was still in a barbarous state. They had respect for their inventiveness, for many of their social and ethical standards, and for their art. Pictures of the great wall were about the room. As the discussion was carried on it transpired that the great wall had become a symbol to the children for Chinese isolation. They had found that China once in the vanguard of world civilization had failed in many particulars to keep its forward place because its people refused to mingle with people of other nations. They were isolationists, not co-operators. The children saw that the Chinese paid a heavy price for this and that the rest of the world was long deprived of the contributions that China could make. You say that such ideas are too advanced for eight, nine, and ten years old? Not when co-operation is a significant matter to them because they are being helped to practice it day after day and when the principle as applied to China has been as concretely developed as it was in this special classroom.

CONCLUSION

A new world is in the making. That it may be a better world for every one it is necessary that intelligent, well-informed, social minded people direct its growth. The builders of this new world are in the schools of today. We are their teachers. It is for us to organize schools in which their minds function and in which social attitudes necessary to the attainment of better living are developed. These will be schools where children live and work co-operatively for the best interests of the group, in which a vision of the possibilities of world co-operation so grips the imagination and so stirs the social conscience that this vision will eventually materialize into active measures for closer co-operation for the common good, for world citizenship. This is a program worthy of our best efforts.

THE RUBBER GROWERS

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Note to teacher: Rubber is another product of the Equatorial Rain Forest Region and is grown in Malaya, Ceylon, the Dutch East Indies, Brazil and India. The names of the countries are in order of their importance with regard to the world's supply of this commodity.

One of the commonest things we use in school is a piece of India rubber with which to rub out the mistakes we make when we are not thinking hard. Rubber is also used for making balls, football bladders, rings for ginger beer bottles and tires for bicycles, motor cycles and motor cars.

Now rubber is, in the beginning, the sap or juice from a tree. And if we think, say of how many motor tires there must be in the world, we can see that there must be, somewhere, a tremendous amount of rubber juice. It is interesting to remember that every one of those tires running along the roads was once a milk-like fluid running about in a bucket. Only trees that grow in warm, wet countries can produce so much juice or sap as these rubber trees do.

The part of the world that grows the most rubber is British Malaya. Most of the land, except for a few roads and railways is covered with a thick forest where the trees are joined together by thorny creepers, and it is not possible to move a single yard without cutting a path. It is easier to travel on the water than on the land, but even traveling by boat on a river is not as easy as it sounds, for the river may be full of fallen tree trunks, and the smaller streams may be covered by creepers from bank to bank.

In Malaya when it rains, no raincoat is of any use; nothing will keep you dry, and you must either take shelter or be soaked to the skin. Fortunately, you can generally see the rain coming—and even hear it, long before it reaches you! But there is plenty of sunshine too, and during the greater part of the day, from about eight in the morning until half-past four in the afternoon, it is necessary to wear a special kind of thick helmet, made of pith, to prevent sunstroke.

Before a rubber plantation can be made the forest must be destroyed. First, the ground must be cleared, and this is nearly always done by Chinese, of whom there are thousands in Malaya.

We have seen that cocoa in Africa is grown by black men who are their own masters and work for themselves. The Malay rubber

plantations belong to white men who employ colored workers. But the colored workers in this case are not black. The Chinese, who destroy the forest, are yellow men.

In order to prepare the ground for a plantation the low bushes are cut down and the tall trees felled. Then everything is left for two or three months to dry, after which it is set on fire to make a bonfire bigger than any you ever saw in your life.

When the fires have burned out and the ground is cool, a road is made right thru the center of the clearing and the rest of it is divided into blocks by other roads on either side—just as we divide up a garden or an allotment at home, excepting that the plots are much bigger.

We have already learned that, in the case of cocoa, seeds are first sown in a seed bed or nursery. This is also true for rubber. The seeds are planted in prepared nursery beds about three or four inches apart, and are left till they are about six months old. Then they are pulled up and most of the root and all the top green cut off. All that is left is a little stump. These stumps are planted out on flat land or, perhaps, on terraces cut in the sides of the hills, about fifteen feet apart, and will be ready to give us rubber juice when they are five or six years old.

The planting and digging on a rubber plantation are not usually done by the brown Malays, but by brown men from India, called Tamils. As the Indian workers do not wear boots they cannot dig with a spade; its sharp edge would cut their feet. They use, instead, a tool in which the iron part is fixed to a curved wooden handle, and they slash holes in the ground rather than dig them.

While the trees are growing, other things are growing too. Weeds in this part of the world will grow eighteen inches high in ten days, and the plantations have to be weeded thoroly at least twice a month. This work is done by women and children who go out in gangs of twenty-five to thirty under a head-man, who sees that they do their work properly. They begin very early in the morning, but stop about half-past ten or eleven o'clock for the first meal of the day, which they eat in the plantation.

As a rule there are only two meals a day, the other one being taken about six o'clock in the evening. The chief food is rice and curry; the chief drink is plain water or water in which rice has been boiled. When the women go out to work, they take with them two pots which fit one on top of the other. The rice is in the lower pot, the curry in the upper one.

The curry is made with vegetables and sometimes with chicken or goat's flesh. Pork and beef are never eaten. In the fields the big leaves of the rubber plant do for plates, and fingers take the place of knives and forks.

Half an hour is allowed for the meal, after which the women go on till three o'clock. The children, however, go home at one. There they grind curry powder and collect firewood till two o'clock; they then attend school till five in the evening.

FIG. 1. Collecting latex from the rubber tree. Courtesy, Rubber Growers Association, London.

Now let us suppose that the rubber trees are grown up and are ready to give us their sap. If they are old enough they may be fifty to sixty feet high and measure from eight to ten feet round. The work of tapping the trees begins very early in the day for the sap will not flow when the tree grows warm in the sun. About four o'clock in the morning, while it is quite dark, the night watchman suddenly makes a furious din by banging a big tom-tom or drum to waken everybody. At once, all rise and prepare the rice for the day, but nobody eats any breakfast. By half-past five, while it is still quite dark, all the coolies (as the workpeople are called) are gathered in long lines just like children before going into school.

Along comes the white manager to call the roll—just as we call the register in school. The coolies always speak of him as the "big white master." He works very hard. He has to go to the muster every morning to see that no one is absent. At this time he gives leave of absence to anyone who wants a holiday, examines everyone to see if any are ill, sends the sick people back home, and gives

the rest their special work for the day. In the afternoon he has to see that the children go to school, and give them all a dose of nasty bitter quinine to prevent them from getting fever.

At the early morning roll call everybody has to be properly dressed. The women wear a piece of cloth wound round the body. It is fourteen times the length of the distance from the elbow to the tips of the fingers. On high days and holidays the women dress in silk—white, orange and green. The men when they come to muster, wear a kind of skirt and a European shirt with the tails outside. When they go to work they take off the shirt and wear nothing but a loin cloth around the middle of the body and a head cloth on the head. There is always one person in charge of the coolies and he wears all day a white jacket and carries a little stick.

FIG. 2. Tapping a rubber tree. Courtesy, Rubber Growers Association, London.

Let us follow one of the coolies who is going to tap the trees and collect the milk-white sap. With a tool like a chisel he shaves off a strip of bark a third of the way round the tree and another small strip leading downwards. At the bottom of the downwards cut he fastens a little china cup into which the sap trickles. An Indian coolie can tap three hundred and fifty trees in a day; a Chinese can tap five hundred. The white man who looks after the

plantation will go his rounds a bit later to see that the trees are not being harmed by being cut too deeply, that the coolies are not asleep and that the cups are clean.

It all sounds very simple but you must remember that the plantation has been made by cutting a hole, as it were, in the forest,

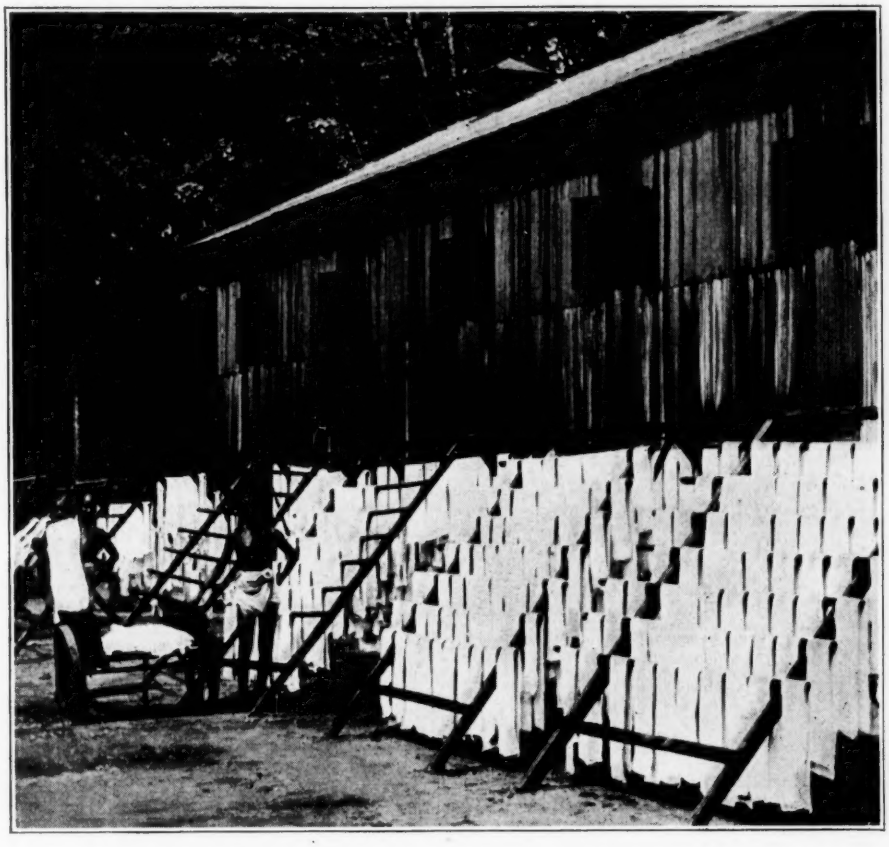

FIG. 3. Drying rubber in the open air. This is the common crepe rubber of commerce. Courtesy, Rubber Growers Association, London.

and the rest of the forest is left just as it was. Sometimes a tiger will jump out and eat one of the tappers. If this happens, all the tappers quit work till the tiger is killed or till the manager gets together a gang of men who beat gongs and blow trumpets to frighten him while work is going on. Some of the Malay tappers, not the Indians, believe that the tiger never attacks a man who is looking at him. So when they are at work they wear a mask on the back of the head. If the tiger comes up behind the man it sees

the mask, thinks the man is looking at him, and goes home again —perhaps.

About ten o'clock the tom-tom is beaten once more, or perhaps the factory sounds a whistle. The milk in the little china cups is then poured into cans or buckets which are carried to the factory either at the two ends of a pole over the shoulder or on the head, or it may be collected in a kind of big dust-bin and carried in a cart drawn by bullocks. At the factory, a low, one story building, with a corrugated iron roof, the milk is poured into big pans and a weak acid is added. After a few hours the milk turns into a white, solid stuff that looks like heavy dough. It is then rolled into flat sheets, smoked and dried, after which it is ready to be sent to other lands to be made into the kinds of things we have already mentioned.

Tho the women go on weeding till three o'clock, the tappers stop work at 11:00 or 11:30. They have, by that time, finished a day's work, and can do what they like with the rest of their time. As a rule, they go back to the coolie "lines," where they live, to eat, sleep, or work in their gardens.

Usually the "lines" are rows of long houses made of wood; there is plenty of wood. The houses may be thatched but, more often, they are roofed with corrugated iron or asbestos, which is safer in case of fire. Each of the houses is divided into twenty-four compartments, each of which has a door and a window but the walls do not quite reach to the roof. In each compartment live four coolies. The houses are built on piles about eight feet from the ground in order to be out of the damp, and the space between the ground and the floor is often used as a kind of kitchen where the food is cooked, and as a playground by the children in wet weather.

As there are women and children on the plantations, of course there will be some babies. When the babies are about three months old their ears are bored for ear-rings—not one hole like an American child might have, but nine holes in each ear, for there are nine different kinds of ear-rings! While they are too young to go to work they are put in charge of a nurse (ayah), and, during the day, they live and play inside a big fence; every day the manager has to go to the nursery to see that they are being properly cared for. He is a very busy man: he is doctor, nurse, and school attendance officer as well as planter; in fact, he is like a father of a very big family.

CONCERNING THE REVISION OF COURSES OF STUDY IN GEOGRAPHY

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Within the last few years there has been a commendable movement on the part of educators to revise or to reformulate courses of study in all subjects, including geography. From a schoolman's point of view many of these courses seem to be the acme of perfection—an impression based on the evident amount of labor involved, the thoroness of development, the high degree of forethought shown, and the seemingly logical organization of the work. Apparently we can rest on our work and laurels for years to come, with the satisfaction that we have produced commendable results and that we cannot perfect perfection.

OUR COURSES USUALLY PRODUCTS OF INBRED CONDITIONS

But who is usually the outspoken connoisseur of the course of study? If we are frank, we must admit that it is the teacher who says of the teacher's product that it is good. Is this not a false basis on which to rest? Should not these good comments arise from the social, economic, and religious world rather than from the educational world alone? After all, education has been defined as the fullest development of the individual's innate possibilities, consistent with social needs and welfare. Here is a simple definition that any intelligent layman can readily understand. Yet we as teachers ignore the implications of the definition and say, "Here is an excellent course in geography." "That course is the best I have seen." "This course will be a standard for years to come." etc.

On what basis are statements of this type made? What objective reasons prompt teachers to make them? Should we not go out into life itself and consider its conditions and needs, compare our courses with our findings, and then form our judgments of courses of study? It seems to the writer that this is the one and only way to construct courses or to evaluate them—considering our definition of education.

COURSE OF STUDY REVISION IN PRACTICE

Committees on courses of study seem to function according to one or a combination of the following methods:

1. Take a limited number of courses that are considered good. Pick out those parts which seem to be best. Then construct an eclectic course. On a subjective basis this method must produce a perfect course for it contains only perfect elements. However, on what grounds do we say they are perfect?

2. The people who write textbooks in geography are supposedly experts in the field. Hence, select from the textbooks the topics that appear in most of them and organize these items into the course of study. Yet, how many of these textbook writers based their work on existing courses of study? Between Nos. 1 and 2 there seems to exist a vicious circle!

3. Many of the courses published are good, but the one to be produced by the committee or superintendent must be different. Hence, regardless of the method of formulation, the real guide for selection of content and the organization of material must be that of discarding anything that the committee members have seen elsewhere and including novelties that must mark the new course as being original.

4. Refer to statistical analyses and reports on research for items to be included in the course. But so little has been done in these fields that the committee is almost helpless in a sole reliance on this method.

5. A favorite method, seemingly, is to pick topics out of the thin air, just as Merlin did in another field at the court of King Arthur. The committee will sit discussing and arguing and as each member obtains the floor, he will almost invariably begin with, "I think—." This expression is sometimes changed to, "I believe —." Such a course will consist mainly of topics sponsored by that member who has the bassest voice and the most aggressive personality.

The Need of a Scientific Basis in Revision

In summation, then, we can say that no matter how good we as teachers may consider a particular course of study in geography to be, we should withhold judgment until it can be formed on objective estimates of the degree with which the course prepares the student for life. Indeed, even before we attempt to evaluate courses we should provide a scientific procedure in the actual formulation of the course itself. The course should be founded on a scientific basis so that the committee, usually composed entirely of teachers, will be able to provide for those attitudes, habits, skills, and knowl-

edge in geography which should be developed in the pupils in order to serve them and society to the greatest degree.

As we stated before, there is a pathetic lack of this scientific material extant. Our country shines as a proponent of free education. The very life and spirit of our government depend on the proper education of our future citizens and rulers. We cannot expect society to provide us with the research and investigation needed in teaching for, to come down to bald facts, teaching is the job of teachers. We have no legal or moral right to tell other teachers what to teach if we ourselves do not know what should be taught.

Suggestions for Some Urgently Needed Research

No attempt is made here to list all the possible problems that need objective solution. Some of these problems can be answered solely by statistical procedure. Others must, by their nature, be influenced by human judgment. However, the writer strenuously advances the point that even where human judgment must enter, it should be reduced to a minimum, regardless of the cost. Each of these problems will arouse in the thinking reader's mind many other problems, some of greater importance than the original stimulus. Many of these problems can be solved by volunteer research on the part of interested and competent individuals; some can be answered by the group activities of college or normal school teachers and their students; others can be studied by progressive superintendents or supervisors and the teachers in their charge; still others can be solved by governmental and private agencies, such as the Office of Education, city, county and state boards of education, professional organizations, etc. The field is rich with latent possibilities of extremely interesting and stimulating work; there is a wealth of workers to labor in these fields. The two should be joined.

1. What is the modern idea of geographic study in the elementary schools? Does it fit in with the general aim of education, social efficiency? Does it fit in with the minor aims of mental efficiency, civic efficiency, vocational efficiency, avocational efficiency, moral efficiency, and physical efficiency?
2. Who should construct the course of study? Why? Should the committee have representation from the economic, social, and religious worlds? Why? To what degree? How? How should the teaching, supervising, and administration divisions of school systems be represented?
3. Should the matter be presented logically or psychologically? When should either form be employed? What are the criteria for choosing each? Why?
4. Should the teacher be given much or little freedom in the choice of content? What are the criteria for deciding the degree and for selecting appropriate subject matter?

5. What is the one-cycle plan of organization? Two-cycle? Three-cycle? What are the advantages and disadvantages of each? What other form of organization has most of the advantages of these with least of their disadvantages? Why?
6. Home geography, political geography, physical geography, mathematical geography, commercial geography, regional geography, etc.—to what extent should each be taught in each grade? Why? What is the best vehicle of instruction for each? Why? How can two or more of these studies be interrelated?
7. When and how should types be employed? What are the criteria for selecting types? What kinds of types are best, e.g., states, industries, regions, etc.? Where will it be most efficient to use each?
8. What is a region? What are the criteria for selecting regions? Where and when should regions be employed? Why?
9. Should every topic in the course be completely outlined so that the teacher is fully informed to the smallest detail as to what to teach, or should it merely be indicated? If indicated, to what extent? How can we decide when we have fully developed the subject matter according to either method?
10. At what point is it best to introduce problem geography? How? To what degree? What are the criteria?
11. How can the committee on the course of study in geography work with a committee on the course of study in history, civics, health etc. To what extent should there be a correlation of these subjects? How?
12. What are minimum essentials? What are the minimum essentials in each unit of geographic study? What are the criteria?
13. Should there be separate minimum, normal, and enriched courses? What are the deciding factors in selecting content for each? What should be the detail for each?
14. What facts in mathematical and physical geography should be taught? In what grades? Should the instruction be given isolated or tied up with human activities? How? What are the advantages and disadvantages of each method? Should these subjects be entirely discarded in the elementary school and reference made indirectly when the occasion warrants? Why?
15. How much time should be allotted in each grade to the study of geography? In what grade should it begin? What is the best physical arrangement of the syllabus as to placement of aims, suggestions, content, pupil activities, bibliography, etc.? Why? What other details should be included in a course of study besides these?
16. Should pupils be required to reproduce maps from memory? With what detail? Which ones? Where? Why?
17. Would it be advisable to have one term of general geography? Where? Would this eliminate and if it does is it advisable, the study of Asia, Africa and Australia? How can we give the child a unit-whole idea of the world? How much time would be spent on this?
18. Should geographic study be introduced in school thru home geography or thru the study of an exotic place? Why?
19. What is a teaching unit? What are the best teaching units for each grade? How should each unit be developed?
20. What are the chief geographic principles to be taught in the elementary school? In what grade should each principle be taught? How?
21. What is the *best* method (or combination of methods) to be used in teaching certain types of geographic subject matter? What should be the effect of mental maturity and intellectual preparation on the selection of such method?
22. To what extent should various items of geographic subject matter be rationalized, e.g., principles, seasons, etc.? When?
23. What standards should be used for evaluation of textbooks, maps, pictures, models, etc.?

24. What type of pupil activities is suited for each mental level of the child? What are good pupil activities for each unit of geographic study?
25. What modifications in teaching should be made with pupils at different mental levels? What content material should be emphasized? Why?
26. What is the relationship between teaching geographic content matter as geography or as part of social science? How successful has actual practice been with social science? What are the advantages and disadvantages? To enjoy the advantages, would it be advisable to make a hybrid course? When? Where, How?
27. What geographic terms should be taught in the elementary schools? When? How?
28. What is the best curriculum to be followed by the teacher who is preparing to teach geography as a specialist?
29. Courses of study are many times partly based on a survey of current textbooks. Textbooks are greatly influenced by current courses of study. This is a vicious circle. How can a committee on revision of the course of study evade these subjective elements?
30. What is a minimum list of locational facts on which the children should be drilled?
31. What should be the steps in teaching children how to read maps?
32. Arithmetic study is based on a well planned gradation of subject matter. How can geographic subject matter be properly graded?
33. What should be the minimum equipment of apparatus and books for a school? For a geography classroom?
34. What are the specific difficulties in teaching children how to study geography? What are the remedies?
35. How can geographical study in the elementary schools be vitalized?

In closing this article the writer wishes again to emphasize the fact that these problems can be and usually are solved by arm-chair philosophy. However, he strenuously advances the point that this is fundamentally wrong; that each of these problems should be answered on a genuinely scientific basis of research, survey, investigation, statistical study, etc. For further problems the reader is advised to consult "Rating Elementary School Courses of Study" by Stratemeyer and Bruner and "The Thirty-second Yearbook of the National Society for the Study of Education."

"METROPOLITAN DISTRICTS, POPULATION AND AREA"

A Critique

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The needs of the geographer are being given increasing consideration by the technical bureaus of the federal government. Encouraging signs of this are numerous, ranging all the way from employment of trained geographers to co-operation in establishing new services. A 250-page quarto atlas has recently appeared under the title which stands at the head of this page.[1] It has been rightly hailed as a major contribution to the geography of American cities. At last those historical accidents called municipal boundaries have been abandoned in favor of the whole area about the urban nucleus which spreads outward in an uninterrupted urban landscape.

CONTENTS OF THE ATLAS

The book deals with the 96 conurbations in the United States which on April 1, 1930, held 100,000 or more people and had at least one nuclear city of 50,000. Since some arbitrary lower limit had to be chosen, 100,000 serves admirably because it is a round number easy to remember. It must not be forgotten, however, that mere numbers possess no geographic magic and that conurbations of a little less than 100,000 are not, therefore, inherently different from the smaller metropolitan districts which are mapped.

The frontispiece is a map showing the location of the 96 metropolitan districts and suggesting roughly by the size dot their relative size. The mere locating of the conurbations evokes a wealth of geographic ideas, but a map of proportionate volumes[2] would be more useful to geographers because it would show areas quantitatively as well as locations.

The metropolitan districts are treated alphabetically. Each one is introduced by a map showing the minor political divisions within and some distance beyond the metropolitan district. The nuclear city and the metropolitan district are clearly portrayed. Due to

[1] Fifteenth Census of the United States, 1930: Metropolitan Districts, Population and Area. U.S.D.C. Bur. Census, Washington, G.P.O., 1932, 85¢.

[2] For a handy discussion of this method of mapping densities see C. J. Bollinger: A Population Map of Central Oklahoma for 1920. *Geog. Rev.*, 20 (1930), pp. 283-287.

the exigencies of statistical methods, the boundaries of both have to coincide with political subdivisions. Here is a possible source of misconception, since much, in some cases most, of the area outside the nuclear city may be uninterruptedly occupied only along roads, and even within city limits some land is not put to urban use. With field work the geographer could effectively correct the map by eliminating areas of non-urban occupance. (It would, however, be a prolonged task to make the correlative allowances in the tables of population and area which accompany the maps.) Lacking an opportunity to study a metropolitan district in the field, comparison of the map with a street map of the city and with detailed maps of routes, landforms, drainage lines, and natural resources of the surrounding country, will go far toward converting statistics into geography.

The page or so of tables which follows each map sets forth vital statistics (already made familiar in census reports). They can be used by the geographer to deepen his factual knowledge of the density and of the racial origin of the population. As a guide thru the maze of the larger conurbations these tables will probably prove more useful than in the case of the smaller places, where densities and origins trace a less complex pattern.

In this atlas of "Metropolitan Districts," then, the geographer is provided with the statistical basis for a study of all the major American cities. Every geographer who has tried to bring his studies down from the entrancing but insubstantial clouds of speculation and generalization to the supposedly solid ground of statistics has sometimes been disillusioned by discovering that the statistics, when fully understood, are inaccurate or incomplete. The false sense of security which rests upon erroneous statistical foundation is one of the commonest of the pitfalls which beset the sincere and industrious geographer. Presumably this atlas, like other compilations by our federal agencies, is as free from factual error as is humanly possible.

Relation of the Statistics to Geography

Statistical accuracy, however, does not indorse the book for direct and uncritical geographic comparison. For a second pitfall lurks in the statistical path, even more completely camouflaged than is occasional inaccuracy. Statistics have a way of encouraging, of almost compelling their employer to use them comparatively. The mathematical symbols in which they are couched—digits—

when aggregated into numbers invite direct comparisons. But such treatment, however sound mathematically, assumes that all the figures which deal uniformly with a single topic are necessarily evidences of geographic similarity. This assumption leads into a morass of confused thinking. Mere population figures utterly fail to distinguish the different functions of conurbations and to differentiate the natural environments in which they are severally rooted. Thus they may play false their unwary employer.

A striking example of this danger appears in comparing conurbations which are dominantly commercial with manufactural cities. Lowell-Lawrence, where trade is wholly subordinate to the manufacture of textiles, may be geographically contrasted, but scarcely compared with Norfolk-Newport News, which is concerned chiefly with the exportation of coal and secondarily with general distribution of goods and with naval defense. Both have populations not far from 300,000; both are in Eastern United States; both lie on the seaboard. Comparison is almost irresistible. But a glance at the map shows the Norfolk group of cities to be peripheral to the harbor which they face and from which they derive their life, whereas only one, and that the smallest, of the Lowell-Lawrence group lies on tidewater. Norfolk is the terminal of main-line railroads; Lowell-Lawrence and the associated towns are way-stations on radial lines of a local railroad system which focusses on Boston's harbor, not on their own. The significant hydrographic feature of the Lowell-Lawrence agglomeration is a river, and not the seacoast. Study of the tables which accompany the atlas maps discloses further contrasts, for neither the space occupied by the metropolitan districts, the population density, the percentage dwelling in the nuclear cities, nor the racial origin of the inhabitants are at all similar.[3] All these contracts reflect two fundamental differences

[3] A tabular comparison of the two metropolitan districts brings out some of these contrasts. The figures are quoted from the atlas; the percentages have been worked out for this footnote.

Item	*Lowell Lawrence*	%	*Norfolk-Newport News*	%
Total population	332,028	100	273,233	100
Total land area in square miles	292.2		468.6	
Inhabitants a square mile	1,136		583	
Population outside nuclear cities	146,726	44	63,402	23
Land area outside nuclear cities	272.1		431.6	
Inhabitants a square mile	539		147	
Population in central cities	185,302	56	209,831	77
Total white population	330,945	97	174,985	64
Total foreign born population	88,806	27	8,123	3
Total colored population	925	0.3	97,891	36

between the two conurbations: (1) widely divergent environmental settings and (2) different dominant function, manufacturing in the one case, commerce in the other.

The most glaring of the incongruities which the atlas masks arise from the statistical similarity between geographically unlike cities where not only the site conditions differ, but the whole situation is disparate. This is illustrated by comparing the cities of the dry West with those of the humid East. It is notorious that the population of dry climates, and of the dry subtropical climate especially, tends to foregather in cities and towns. The farmers themselves occupy farm villages even where they live on their tiny individual holdings. Thus the more fertile parts of these regions present a closely spaced occupance even where no urban functions are carried on. This distribution is the antithesis of the spread of rural population in the humid East, where large individual holdings have scattered the farm people broadcast over the land which they work. The geographic distinction between the disseminated and the clustered distribution of farmsteads is admittedly profound, but still more fundamental is the fact that both are rural in function. Hence to lump the clustered groups with nearby cities distorts the whole picture of urban geography. The scheme of statistical presentation adopted for the atlas of metropolitan districts produces precisely this distortion. Los Angeles, to take the most notable example, includes a clear majority of all fruit and vegetable ranches in Southern California. Thus the figure given for its population (placing it between Philadelphia and Boston) cannot be accepted without subverting the comparative economic geography of American cities. Similarly, the metropolitan district of San Jose is coincident with the whole fruitful Santa Clara Valley. It should be recognized, however, that the social geography of cities rests in considerable measure upon population density without reference to occupation, and upon adjacence to centers of varied and vigorous social life. For a study of social geography, therefore, the book is less misleading than in the more familiar field of economic geography.

The Bureau of the Census cannot be too highly praised for providing geographers with a new tool for shaping the study of urban geography. The geographers themselves will be to blame if they use that tool clumsily by failing to realize both its usefulness and its limitations.

ANNUAL MEETING
NATIONAL COUNCIL OF GEOGRAPHY TEACHERS

The next annual meeting of the National Council will be held at Northwestern University December 28-30, 1933. The first session will be Thursday afternoon December 28 and the last session Saturday forenoon December 30. This year the Association of American Geographers will hold its meeting in the same place December 26 to 28 inclusive. Thursday afternoon and evening sessions of the National Council will be held in University Theater, Annie May Swift Hall, and all other sessions will be held in Harris Hall.

Three good hotels are available only three blocks from the University campus. The rates are as follows: Georgian Hotel, which will be headquarters, $3.00 for single rooms and $2.00 each for two people in a room; North Shore Hotel rates are the same as for the Georgian. The North Shore Hotel has a cafeteria in connection. The Orrington rates are $3.00 for single rooms, $4.00 for two in a room with a double bed, and $5.00 and $6.00 for rooms with twin beds. All rooms are equipped with bath. The railroad stations, including the Elevated from Chicago, are at Davis Street and the hotels are about three blocks from the station. Make your reservations early as the number that can be accommodated at the hotel of your choice is limited.

Arrangements are being made for special reduced railroad rates for members on the Identification Certificate Plan. Under this plan members *must* secure certificates *in advance* and have them signed by the agent from whom they purchase their ticket to the meeting. Send a self addressed stamped envelope for your certificate to Dr. E. E. Lackey, Department of Geography, University of Nebraska, Lincoln, Nebraska. If you are not now a member send your membership dues of $2.00 (which includes the JOURNAL OF GEOGRAPHY) at the same time and a certificate will be issued to you. The railroads grant this rate only to certified members.

The meeting promises to be one of the largest that has been held in recent years. Every person interested in the advancemnt of geographic education should be present. The program has been arranged so as to provide ample time for a full discussion of the papers presented. The papers are to be limited in time and number. The tentative program is as follows.

TENTATIVE PROGRAM

Thursday, December 28, 2:00 P.M.

Greetings
President Walter Dill Scott, Northwestern University

Response
Erna Grassmuck, State Teachers College, Indiana, Pennsylvania

Geography in the High School

The Place of Social Geography in the Senior High School
Charles C. Barnes, Assistant Director Social Science Department, Detroit, Mich.

A Geography Program for the High School
Helen A. Burrill, Joliet Township High School, Joliet, Ill.

A New Course in Physical Geography
Frederick J. Breeze, North Side High School, Fort Wayne, Ind.

Report of Committee on Political Geography
Alice Foster, University of Chicago

Discussion Leaders
F. A. Carlson, Ohio State University
Clare Symonds, Senior High School, Quincy, Ill.

Meeting of the Board of Directors

Thursday, December 28, 8:00 P.M.

Research Studies

Summaries of Recent Research Studies
Zoe A. Thralls, University of Pittsburgh, Pittsburgh, Pa.

Geography in the Schools of Europe as Related to Instruction in American Schools
Rose B. Clark, Nebraska Wesleyan University, Lincoln, Neb.

Significant Contributions in Books and Magazines in 1933
Malcolm J. Proudfoot, University of Chicago

The Geography of American Geographers
A. E. Parkins, George Peabody College for Teachers, Nashville, Tenn.

Discussion Leaders
M. E. Branom, Harris Teachers College, St. Louis, Mo.
B. H. Schockel, State Teachers College, Terre Haute, Ind.

Friday, December 29, 9:00 A.M.

Field and Laboratory Work

Geography Laboratory Work in the Teachers College
J. Sullivan Gibson, State Teachers College, Bowling Green, Ky.

Field Trip Experiences in the Intermediate Grades
Elizabeth Zachari, Louisville Normal School, Louisville, Ky.

The Distribution of Sunshine, Twilight and Darkness over the Earth: A Laboratory Study for the Junior High School
Lucia Harrison, State Teachers College, Kalamazoo, Mich.

Land Utilization Survey as a School and College Exercise
L. Dudley Stamp, University of London

Discussion Leaders
Wallace W. Atwood, Clark University
Derwent Whittlesey, Harvard University

Friday, December 29, 1:30 P.M.

Effective Use of Tools

An Experimental Evaluation of the Ability of Children to Interpret Pictures in Elementary Textbooks in Geography
Floyd A. Cropper, Superintendent of Schools, Tilden, Neb.

Geographic Activities Involving the Use of Maps and Graphs
Ruth W. Mikesell, Oak Park, Ill.

Constructive Evaluation and Reconstruction of a Comprehensive Objective Test in Geography for the Junior High School
Marguerite Uttley, State Teachers College, Cedar Falls, Iowa.

Pedagogical and Research Methods in Geography
Ernest Horn, University of Iowa

Discussion Leaders

Friday, December 29, 6:30 P.M.

Annual Dinner
Presentation of the Distinguished Service Award
Address—Dr. H. C. Morrison, University of Chicago
Meeting of the Board of Directors

Saturday, December 30, 9:00 A.M.

Content Units in Geography

The Port of London
Allison E. Aitchison, State Teachers College, Cedar Falls, Iowa.

The Structure of Rhine Traffic
Edna E. Eisen, Steuben Junior High School, Milwaukee, Wis.

The St. Lawrence Lowland: Industrial Heart of Canada
J. Russell Whitaker, University of Wisconsin

Seeing Our Smallest State
R. M. Brown, Rhode Island College of Education, Providence, R.I.

Discussion Leaders
Ray H. Whitbeck, University of Wisconsin
D. C. Ridgley, Clark University

EDITORIAL NOTES AND NEWS

HUGH H. BENNETT has recently been selected by the Department of the Interior to direct a new bureau devoted to the control of soil erosion on several of our important watersheds. Mr. Bennett formerly directed the erosion work of the Bureau of Chemistry and Soils begun in 1928 as carried out at the ten regional stations of the United States Department of Agriculture. His survey estimates that thirty-five million acres of formerly cultivated land have been essentially destroyed for crop production, and that a hundred million acres now in crops have lost all or most of their topsoil. The annual cost of this erosion of farm lands, damaged highways, clogged ditches and reservoirs and flooded valley lands is estimated at $400,000,000. Much constructive work has been done at the stations. Probably the most practical and inexpensive method of checking soil erosion is the method called strip cropping. Essentially this means a planting of vegetation wherever there is suitable moisture to grow plants. Mr. Bennett's new work will be in close cooperation with the Department of Agriculture.

Erosion control has also made headway thru the projects carried out in the 103 Emergency Conservation Work Camps established this year. The demonstration value of these works, principally toward heading off of gullies eating into rich fields, is creating so much interest among farmers that they are requesting more help for erosion control than the camps can give them. Of these camps 13 are in Iowa; 10 are allotted to each of Ohio, Indiana, Missouri, and Mississippi; Wisconsin and Minnesota each have 9; Kentucky and Illinois have 8 each; Texas, 7; Oklahoma and Tennessee, 5 each; and Alabama has 2.

Geography in the Elementary School was the general theme discussed at the meeting of the Alabama State Council of Geography Teachers which met last spring. One of the papers dealt with field work in the lower grades; others, with techniques and measurements of instruction.

A new topographic map showing a part of the Skyline Drive has just been issued by the United States Geological Survey. The area included is a part of the proposed Shenandoah National Park, and the adjacent part of Page Valley containing the Luray Caverns, and a short part of Massanutten Mountain. In general, the Skyline Drive follows the crest of the Blue Ridge, near the summit of which is the famous resort Skyland with its ragged ridges and deep coves. Other highways within the area are shown on the map, including Lee Highway. Besides its value to school libraries, the map will be a distinctive service to motorists who venture into this region of forests, gorges, cascading streams, and caverns.

Next summer another expedition will attempt to climb Mount Everest. The exploring party of 1924 pitched a camp at 26,800 feet and two of the climbers reached 28,000 feet in comparison with those of the 1922 expedition who reached 27,300 feet. The altitude of the peak is said to be 29,141 feet. It will be recalled that last April four British airmen flew across its summit.

Longhorn Cavern, twelve miles south of the town of Burnet, Texas, has been opened to the public as a state park. The most spectacular feature to the average visitor is the variegated coloring of the calcite crystals found in a part of the cave. A survey of the cave by H. M. Law appears in the April issue of *Field and Laboratory*, published by the Science Departments of Southern Methodist University, Dallas, Tex.

According to an announcement of the U. S. Department of Agriculture made in April, there has been a net gain of more than a million in the farm population of the United States as recorded on January 1, 1933, compared with January 1, 1932. Our farm population is 32,242,000 the largest in its history. Half of this gain in population is due to the fact that the exodus of population from cities or towns to farms exceeded that from farms to cities or towns by about one-half million. The other half million increase is due to the excess of births over deaths on farms. It is noticeable that vacant habitable buildings in farm communities are being re-occupied and that many of the city unemployed have sought refuge in farm homes of parents or relatives.

Included in the work being done by the N.R.A. under public works allotments within the National Forests are projects looking toward the control of fire, the checking of insects and rodents and timber disease; the improvement of timber stands and replanting of ranges; the estimation of timber resources; eradication of poisonous plants; erection of buildings; developing of water supplies and recreation camps.

According to a release from the Agricultural Adjustment Administration dated October 4, acreage reduction pledged in the wheat campaign totaled more than six and a half million acres. This represents 15 per cent of the 43,999,024 acres of wheat land reported in 475,378 signed contract applications. This signed acreage represents about 70 per cent of the Nation's total wheat acreage. The plan calls for each American farmer to sow for next year's harvest 15 per cent less wheat than he has in the past. This is but a part of the world-wide plan to hold down production and exports until the excess supply of wheat has been used.

Recreational Areas of the United States is the title of a new map published last August by the Department of the Interior. It shows the distribution of National Parks, Monuments, and Indian Reservations administered by the Department of the Interior; the National Military Parks and Monuments administered by the War Department; and the National Forests and Monuments administered by the Department of Agriculture. Cities designated by symbols according to their population are shown along the principal highways. Alaska and the Hawaiian Islands are included in insets. The scale is about one inch to seventy-five miles. On the back of the map is a brief description of the state park recreational areas listed under each state.

INTEREST-STIMULATING DEVICE

The following exercise was carried out by a sixth grade geography class and was found to be helpful in teaching not merely the location of cities or other areas, but in associating some significant relationship between the site so located and its natural or cultural environment.

Procure two large sheets of light gray cardboard, size 2′3″ x 3′2″. On one trace the outline of a world map. Fasten this to a wall in the classroom. Cut the other sheet into two equal pieces and fasten on either side of the map. Together they will serve as a current events map. Ask the students to cut from their home newspaper articles that have some relation to geography and have them pin these to the blank pieces of cardboard. From each of these a string should lead to the location of the place on the map from which the news came. The class may be divided into two teams to encourage competition in map study. The pupils should do all of the work and if one makes a mistake, others are sure to check the error. These are the titles of some of the articles used:

Famous Death Valley is Made National Monument.
Series of Grand Staircases Found in Mexican Pyramid Excavation.
Search for Fossil Mammoth Tusks is Profitable in Siberia.
Blizzard Wreaks Havoc in Britain.
Tokyo is Rocked by Severe Earthquake.
U. S. Woman Succeeds in Banning Slaughter of Turkish Song Birds.
Twelve Billions of Gold Buried in Georgia Hills.

Atlanta, Georgia — MARIE LONG

NOTE

Send descriptions of your interest-stimulating devices to the JOURNAL. We will be pleased to pass them on, as an aid to others, thru the pages of the JOURNAL. There must be hundreds of teachers who have worked out these aids in teaching. Make your description brief, clear, and exact so that another teacher may follow your directions.

EDITOR

GEOGRAPHICAL PUBLICATIONS

L. Dudley Stamp. **A Smaller World Geography.** 424 pp. Longmans, Green and Company, New York. 1933. $1.60

Dr. Stamp's new book entitled A SMALLER WORLD GEOGRAPHY contains in the one volume books V, VI, and VII Senior Series of the New Age Geographies without the colored plates.

In preparing this series (referring to the three books) for the senior school, Dr. Stamp continuously asked himself the question NOT so much "How much ought a boy or girl know when he or she leaves school at fourteen?" but rather, "What material is there which normally comes or may well be included under the term geography which definitely ought to be included in the sum total of knowledge possessed by a boy or girl who, at the age of fourteen, or perhaps fifteen, will take his or her place as a citizen, not only of this country, but also of the world as a whole?"

This single volume is divided into sixteen sections. Sections I to V are introductory dealing respectively with the following topics: Why Should We Learn Geography?, Finding Out Where We Live, The Surface of the Ground, Under the Ground, and Watching the Weather. Section VI (54 pages) treats twelve climatic regions of the world with brief analyses of the life therein.

Section VII is an introductory chapter entitled The People and the Countries of the World. Section VIII is a two-page historical introduction to the Old World, followed by Section IX The Continent of Europe. Herein all the physical aspects of Europe as a whole are discussed. Section X (68 pages) is devoted exclusively to the British Isles while Section XI (28 pages) is devoted to all the countries of Europe.

Section XII, XIII, XIV, XV, XVI, treat respectively Asia, Australia, and New Zealand, Africa, South America, and North America.

The book is interestingly written thruout. 277 figures consisting chiefly of black and white maps, photos, and tables render the textual material much more readable.

It is no doubt an excellent text for the English school system but much out of balance for the American schools. However, the American geographer will find therein much material of a high geographic quality.

FLOYD F. CUNNINGHAM

State Teachers
Florence, Alabama

Grant E. Finch. **New England.** 154 pp. Numerous maps and photos. Rand McNally Co., Chicago. 1933

A textbook developed primarily for the upper intermediate grades, but containing information and written in a style which will appeal to the lay reader. The author has consulted many local authorities and gathered statistics which have been woven into the body of the text in such a way that they give meaning to the written material without becoming a bore. New England as a region is presented in the major portion of the book of 160 pages, followed by sections on the individual states. The author's style is one which will interest pupils and teachers.

The pictures, for the most part, are excellent. One is likely to become confused, however, in the placing of the legends and descriptions which are at the sides rather than beneath the pictures.

"New England" will be found helpful as a supplementary text in all sections of the country as well as a basic text in New England school systems.

GEORGE F. HOWE

Teachers College
New Britain, Connecticut.

John H. Frederick. **The Development of American Commerce.** 383 pages. D. Appleton and Co. 1932. $3.00

In the preface it is stated that the preparation of the text was mainly a task of selection and condensation, the material having been brought together from scattered sources for presentation to college classes whose members are presumably familiar with the elementary aspects of American political and economic history. The twenty-four chapters consider American foreign and domestic commerce at different periods of time and it is quite likely that, for such matters, the material is sound and well-selected. The geographer, however, will find little to praise in those portions where the author has attempted geographic description and analysis. Three faults are conspicuous in these portions: (1) constant reference to such regional sub-divisions as "the South," "East North Central," the "Middle Colonies" etc. as tho such units mean the same thing to one and all, (2) inadequate and often misleading regional descriptions, and (3) preservation of hackneyed and thread-bare geographic concepts.

A few random selections will illustrate each of these faults. "Geographic features determined New England to trade from the beginning. The territory was practically covered with rocky hills and the soil in general was poor" (p. 4). "The Middle Colonies were better situated for the development of diversified economic activities. . . . There were several mountain chains but there were also many sheltered valleys" (p. 7). "The South was ideally adapted to agriculture. . . . There were no mountains near the sea to interrupt communication" (p. 9). Elsewhere (p. 167) reference is made to the "grain fields around Lake Superior" which, with iron and copper, furnished a large tonnage to the "manufacturing districts around lower Lake Michigan." Much of the book strikes one as being extremely elementary, and not merely in the geographic portions. Considerable space is used to explain the obvious. For example (p. 333) the author laboriously concludes that the advance in the relative position of the South among the great manufacturing sections of the country is due to the tremendous growth of manufacturing in the Southern states.

It seems a pity that the author missed so rare an opportunity to contribute to the geography of commerce, and it is regrettable that college students be encouraged to retain such vague and faulty notions of the geography of their own country.

RALPH H. BROWN

University of Minnesota

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At present Mr. Lynch is pursuing graduate studies for his doctorate at Columbia University.

The Sod House. By Donald S. Gates 353

Mr. Gates is a member of the staff of Roanoke College, Salem, Virginia. His field study of the sod house was made while teaching in the State Teachers College, Hays, Kansas.

How to Use the Textbook. By Loula Upton 359

Miss Upton obtained her Master's degree at George Peabody College, and is a teacher of geography at South Highland School, Birmingham, Alabama.

The Banana Growers of Jamaica. By Ernest Young 365

Mr. Young was one of the pioneers in the teaching of human geography in England and is well known in America by his writings and by having served as visiting professor at the University of Chicago and the University of California at Los Angeles. This is the third article in our UNIT STUDIES series.

Organizing a Pre-Geography Vocabulary. By Edna A. Collamore 372

Miss Collamore is a graduate of Clark University and a member of the League of American Penwomen. She is now teaching in Worcester, Massachusetts.

Specific Benefits of Relationship Teaching. By Robert L. Britton 377

Mr. Britton is a member of the geography staff in Marshall College, a graduate of the University of Chicago, Editor of the *News Bulletin* of the West Virginia Council of Geography Teachers, and co-author of Teaching Geography in the Elementary Schools appearing in the *West Virginia School Journal.*

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